REMARKS

Figures 1-5 were objected to because they were not labeled "Prior Art." Fig. 1 is further objected to for incorrectly labeling block 13 as an "I/Q FM MODULATOR." Revised Figs. 1-5 with block 13 correctly labeled "I/Q FM DEMODULATOR" are hereby submitted.

The specification was also objected to for using the word "said" in the Abstract. The Abstract has been amended to remove all occurrences of the word "said".

Claims 1-14 are rejected under 35 U.S.C. 112, second paragraph as being indefinite for lack of antecedent basis. The Examiner stated that Claims 1-8 lacked antecedent basis for "said frequency modulated signals" and "said message word accumulator," and that Claims 11, 13 and 14 lacked sufficient antecedent basis for "said frequency modulated signals". The above amendments are believed to overcome this rejection.

Claims 1-3, 8-11, and 13-16 are rejected under 35 U.S.C. 102(b) as being anticipated by Hutchinson, IV et al (US 5,812,607).

Hutchinson discloses a system and method for processing wideband data in a digital FM receiver. Hutchinson was identified in the Background of the present application as an example of the problems with the prior art. Because Hutchinson works on a timer, as opposed to a counter, it will miss certain sub-frames sent after a sudden loss of signal strength. Specifically, those sub-frames at the end of a digital frame are not processed because receiving ends prematurely when the timer times out, even if there are more sub-frames in the current digital frame being transmitted.

Hutchinson assumes that if the space of the received digital data frame is broad enough, then the message word signal is detected at the start time of the digital data frame. However, if a dotting sequence signal is detected in the second sub-frame and misses the dotting sequence signal of the first sub-frame because of a sudden loss of radio channel strength, the timer still operates from the time of detection. In this case, the time of detection is at the second sub-frame and not the first.

Hence, if digital data frames are received continuously, the timer in Hutchinson will terminate during receiving of the digital data frame after the first digital data frame. In this case, the digital receiver cannot separate the first digital data frame from a next digital data frame that includes a different message word signal. In other words, where the radio channel is weak or data frames are received continuously, it is difficult to immediately find the start time of the new data frame.

To address the foregoing problems, the present invention provides a method and apparatus for accurately detecting the start and end time of digital data frames when they are continuously received. The apparatus claimed in independent Claims 1, 8 and 11 includes a frame end counter for determining termination of the received digital data frame, a dotting signal detector for detecting whether or not a next digital data frame is received after the received digital data frame, and a message word block counter for counting whenever message word signals of sub-frames included in the received digital data frame are received. It is the frame end *counter*, not a timer, that counts the number of sub-frames received. The value in the frame end counter indicates whether a complete digital frame has been received. Because digital data frames have a set, constant number of sub-frames, the digital receiver of Claims 1, 8 and 11 determines whether all the sub-frames of a digital frame have been received. The counter counts the sub-frames, and if a sub-frame is missing, the digital frame can be processed again since it is transmitted continuously and repeatedly.

With respect to amended claims 1, 8 and 11, Hutchinson does not disclose, or suggest, a digital data receiver with a frame end *counter* that counts the symbols received. As for method Claims 13, 15 and 16, Hutchinson does not teach counting the number of synchronized symbols as recited in step (c) of Claim 13, counting total sub-frames and stored message word signals as recited in steps (e) and (f) of Claim 15, or counting the number of symbols as they are input as taught by step (b) of Claim 16.

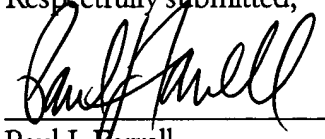
Hutchinson merely teaches using a timer that counts down for a certain time allotted to receive and process a digital data frame. There is no component to keep track of the number of sub-frames received. Although the Examiner maintains that element 612 of Fig. 6 in Hutchinson is the same as the frame end counter of the present invention, this element is a "watchdog timer," indicating that the reference defines the component as only a timer.

The Examiner also relies on element 612 of Hutchinson in finding the counting step of Claim 13. Again, that element is a mere timer that counts down a certain time period and does not count the number of synchronized signals received. Claim 15, as amended, now also recites this counting step. Claim 16 also recites "increasing the counting number of a message word block by 1," which refers to counting the received sub-frames.

Accordingly, independent Claims 1, 8, 11, 13, 15 and 16 are believed to be allowable. It follows that Claims 2-7 would be allowable for their dependence on Claim 1; Claims 9 and 10 would be allowable for their dependence on Claim 8; and Claim 12 would be allowable for its dependency on Claim 11.

Should the Examiner feel that a telephone conference or personal interview would facilitate resolution of any remaining matters, the Examiner may contact Applicant's attorney at the number given below.

Respectfully submitted,



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